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Review of the Final Air Criteria Document for Lead

(U.S.) Environmental Protection Agency
Washington, DC

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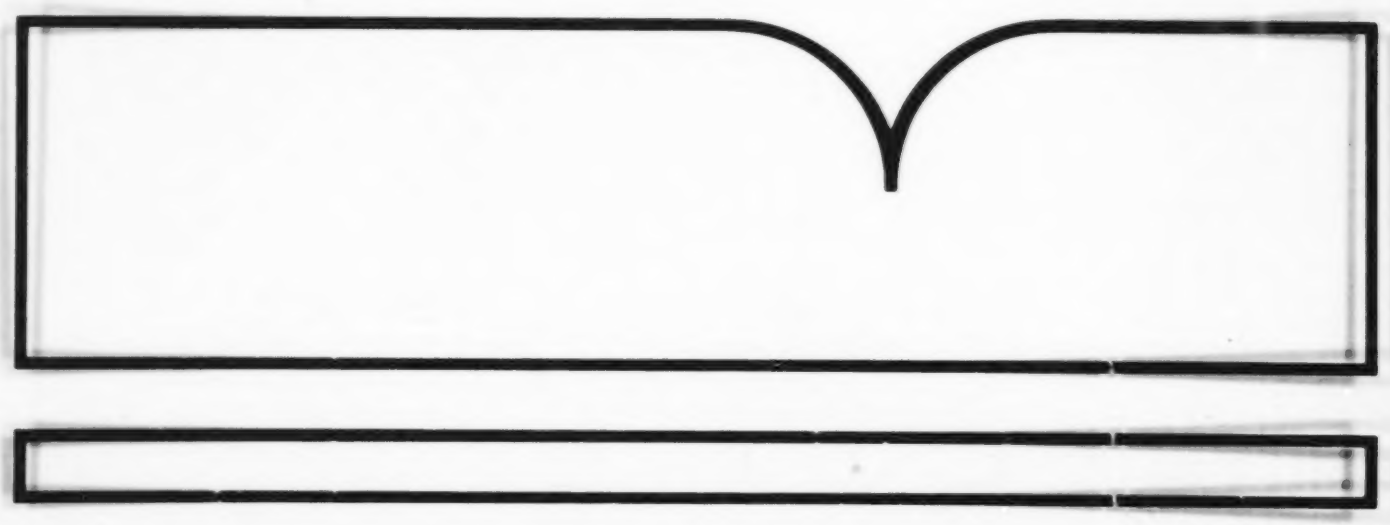

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16. Abstract (Limit: 200 words)

The report documents the Committee's findings relative to its review of the final Air Criteria Document for Lead, and its 1986 Addendum which further evaluated the recent research concerning the relationship between blood-lead and hypertension and the effects of lead exposure on childhood growth and stature. The Committee unanimously concluded that both documents represent a scientifically balanced and defensible summary of the current basis of our knowledge of the health effects literature for this pollutant.

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SAB-CASAC-86-023

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

August 29, 1986

OFFICE OF
THE ADMINISTRATOR

The Honorable Lee Thomas
Administrator
U.S. Environmental Protection
Agency
Washington, DC 20460

Dear Mr. Thomas:

The Clean Air Scientific Advisory Committee (CASAC) has completed its review of two documents related to the development of National Ambient Air Quality Standards (NAAQS) for Lead. These documents are the Air Quality Criteria for Lead and Lead Effects on Cardiovascular Function and Stature: An Addendum to the U.S. EPA 1986 Document, Air Quality Criteria for Lead, both prepared by the Agency's Environmental Criteria and Assessment Office (ECAO).

The CASAC's current review cycle for this ambient air pollutant has included public meetings on April 26-27, 1984, May 13-15, 1985 and March 11-12, 1986. At the May 1985 meeting, the Committee recommended that the ECAO revise the second external review draft of the Air Quality Criteria for Lead by including an Addendum with a further evaluation of recent research concerning the relationship between hypertension and blood lead and the effects of lead exposure on childhood growth and stature. The Committee felt that these two issues were significant enough to warrant special attention.

The Committee reviewed the draft Addendum at the March 1986 meeting and the final Criteria Document and Addendum by mail in June and August 1986, respectively. The CASAC unanimously concluded that both documents represent a scientifically balanced and defensible summary of the current basis of our knowledge of the health effects literature for this pollutant.

Several important issues are discussed in these documents which the Committee believes should be emphasized. In light of the emerging evidence on the relationship between blood lead and hypertension ranging from levels $\geq$ 30-40 µg/dl (micrograms per deciliter of blood) down to levels below 10-15 µg/dl, white males aged 40-59 have been identified as yet another subpopulation potentially at risk. This is in addition to the other traditionally accepted groups at risk: preschool-aged children (age 6 and below) and pregnant women (due to the risk to the fetus).

In general, it appears that the blood lead level at which adverse health effects are recognized as beginning to appear has fallen rather sharply since 1977 when the previous Air Quality Criteria Document for Lead was published. This clearly has implications for the level of the standard and the appropriate margin of safety to consider when the NAAQS for Lead is to be revised. For example, it is now believed that the onset of detectable heme synthesis impairment in children may occur at blood lead levels starting around 10-15 µg/dl. This, along with the indications of increasing degrees of interference in pyrimidine and vitamin D metabolism, as well as alterations in central nervous system activity at these same levels, may be argued as becoming biomedically adverse.

In addition, the emerging data on the effects of perinatal exposure to low levels of lead on physical and neurobehavioral development appears to indicate that fetal exposure to lead at levels as low as 15 µg/dl can have undesirable effects on infant mental development, length of gestation, and possibly other aspects of growth and development.

A separate report will be prepared reflecting the Committee's final conclusions and recommendations on the NAAQS for Lead at the time that the Agency's Office of Air Quality Planning and Standards completes the companion document, the Staff Paper for Lead (Review of the NAAQS for Lead: Assessment of Scientific and Technical Information).

Thank you for the opportunity to present the Committee's views on this important public health issue.

Sincerely,

Morton Lippmann

Morton Lippmann, Ph.D.
Chairman
Clean Air Scientific Advisory
Committee

cc: Mr. A. James Barnes
Mr. Don Ehreth
Dr. Les Grant
Mr. Craig Potter
Dr. Terry Yosie